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Allende

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(54) **APPARATUS FOR USE IN LAUNDERING GARMENTS HAVING CUPS AND METHODS THEREFOR**

(71) Applicant: **Sandra Allende**, Washington, NJ (US)

(72) Inventor: **Sandra Allende**, Washington, NJ (US)

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(51) **Int. Cl.**
D06F 95/00 (2006.01)
D06C 15/00 (2006.01)

(52) **U.S. Cl.**
CPC ***D06C 15/00*** (2013.01); ***D06F 95/008*** (2013.01)

(58) **Field of Classification Search**
CPC D06F 95/008
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,769,819	A	11/1973	Contreras	
5,556,013	A	9/1996	Mayer	
5,829,083	A *	11/1998	Sutton	8/150
6,234,368	B1	5/2001	DesForges et al.	
6,742,683	B1	6/2004	Phan	
2008/0099518	A1	5/2008	Radtke et al.	

FOREIGN PATENT DOCUMENTS

JP 2000-342890 A 12/2000

OTHER PUBLICATIONS

International Application No. PCT/US2013/066086, International Search Report & Written Opinion, 12 pages, Feb. 3, 2014.

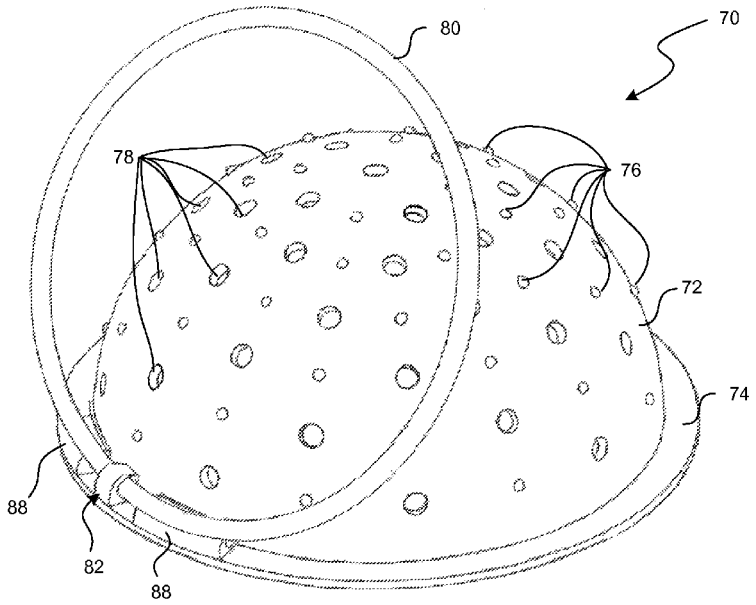
* cited by examiner

Primary Examiner — Jason Ko
(74) *Attorney, Agent, or Firm* — Perkins Coie LLP

(57) **ABSTRACT**

An apparatus for use in laundering a garment having cups comprising a flexible panel, a pair of cup supports attached to the flexible panel, and a pair of retainer rings attached to the cup supports to hold each cup of the garment against a corresponding cup support. Each cup support comprises a convex member. Each cup support may include a plurality of apertures formed through the convex member. Each cup may further include a plurality of protrusions to space the cups of the garment away from the convex member. The apparatus includes a water permeable bag extending around the flexible panel. In this case, the flexible panel may be attached to the water permeable bag.

9 Claims, 10 Drawing Sheets



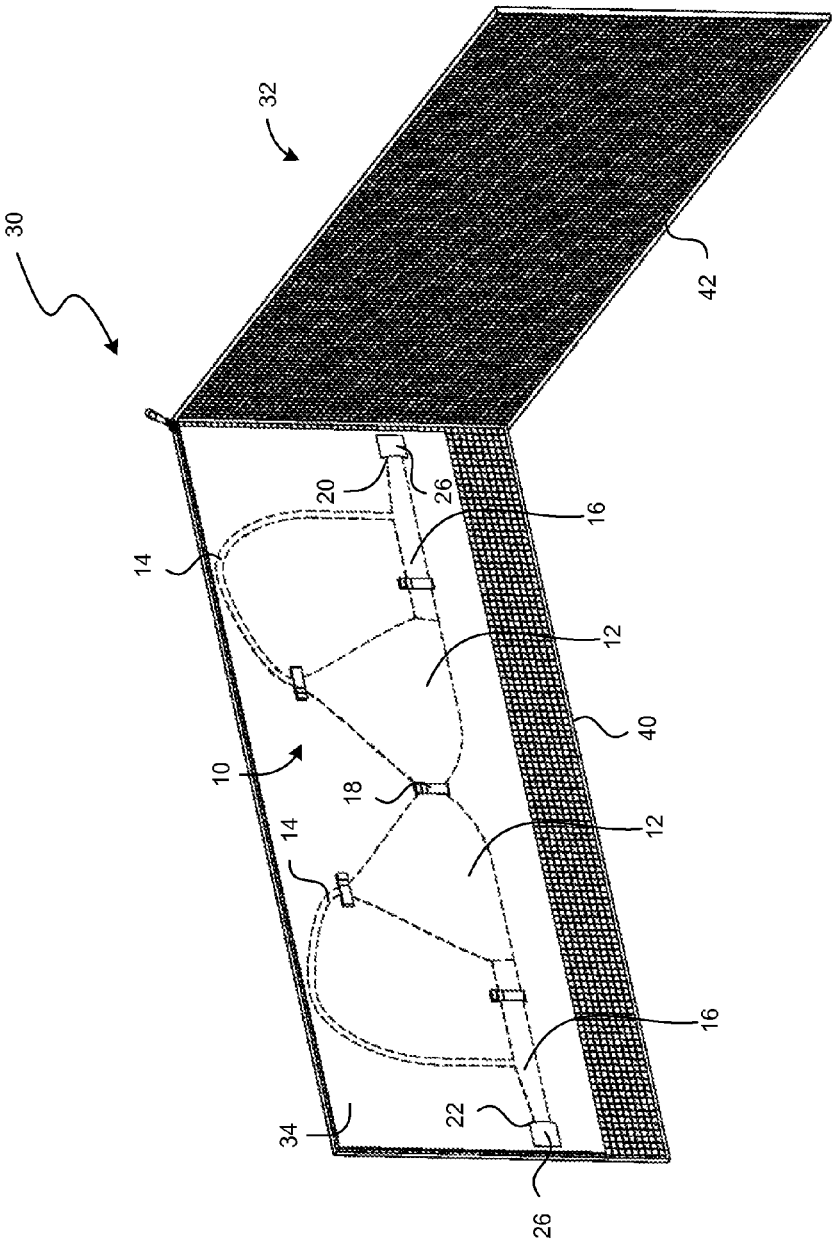


FIG. 1

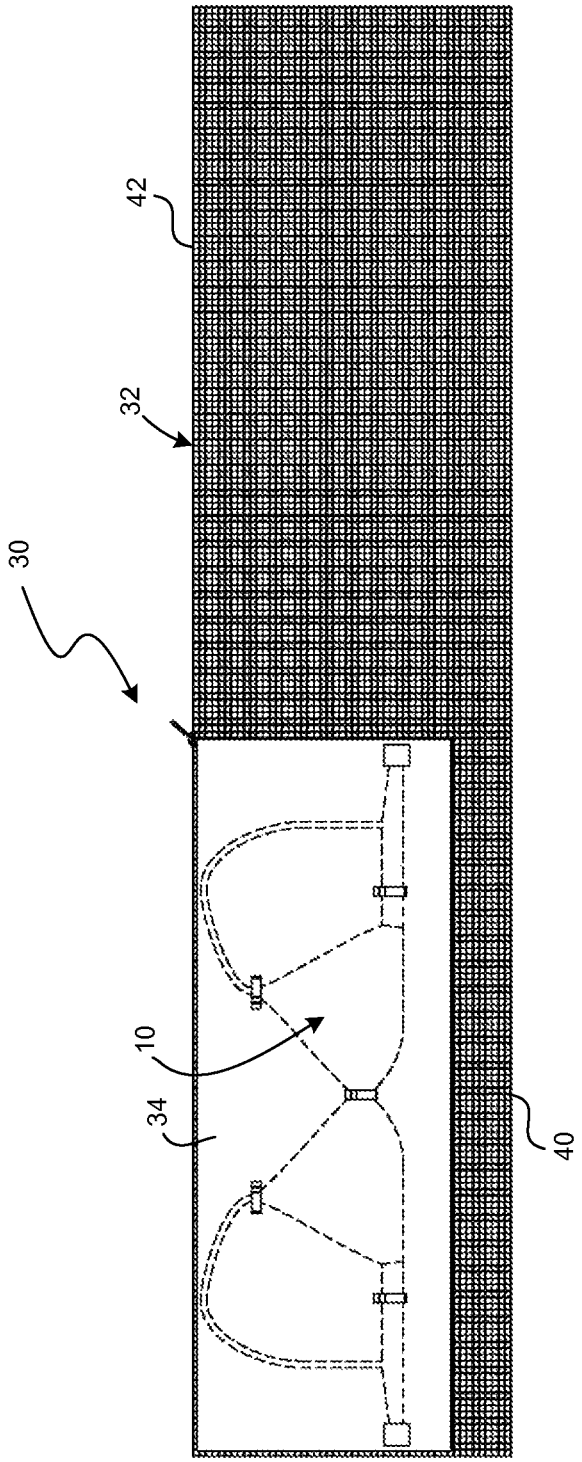


FIG. 2

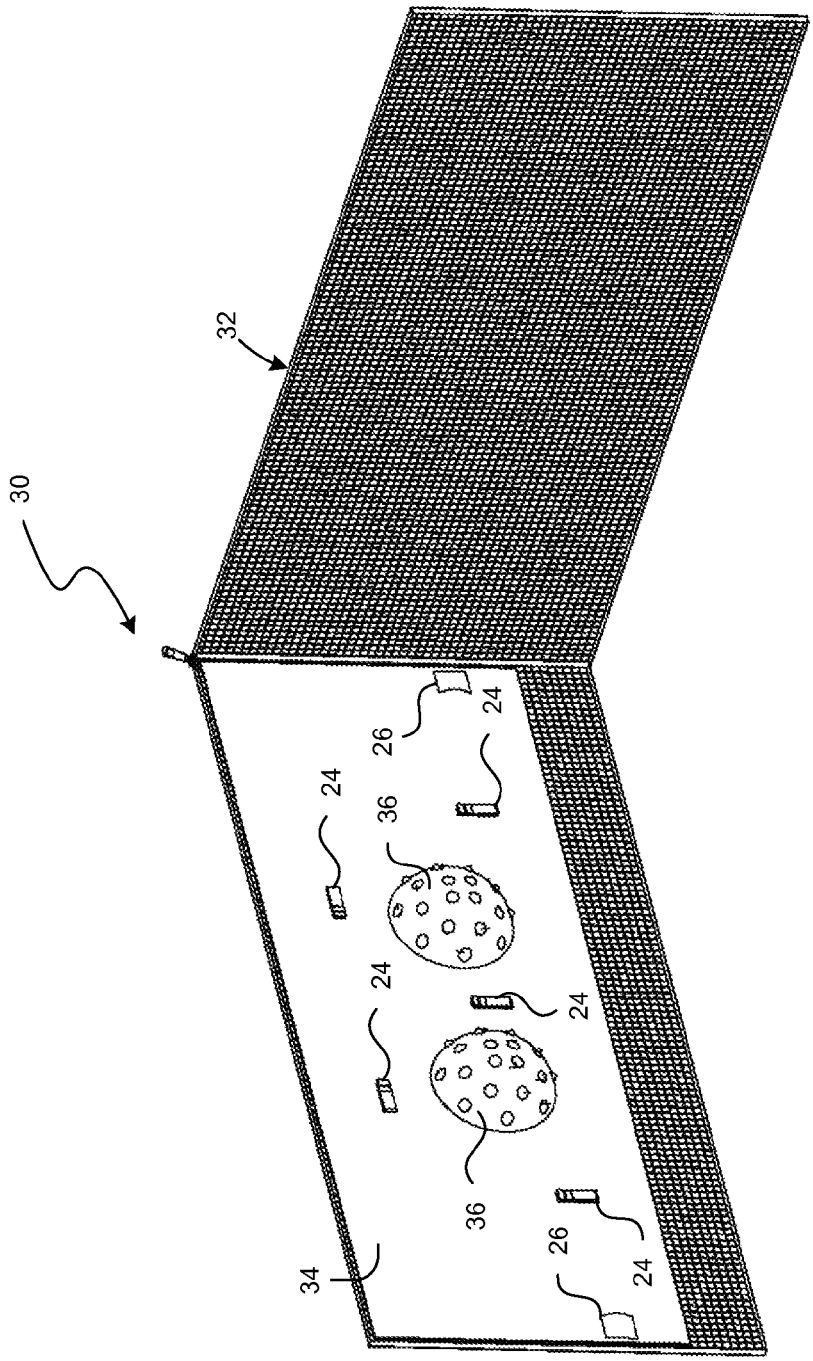


FIG. 3

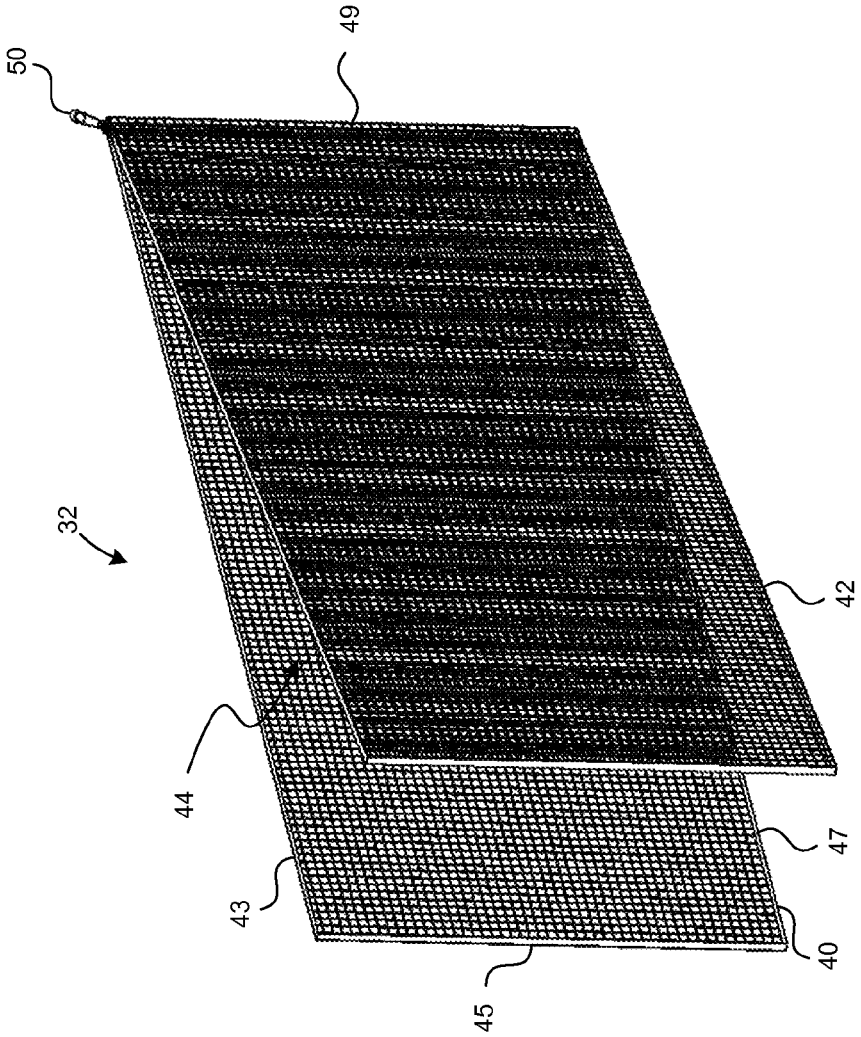


FIG. 4

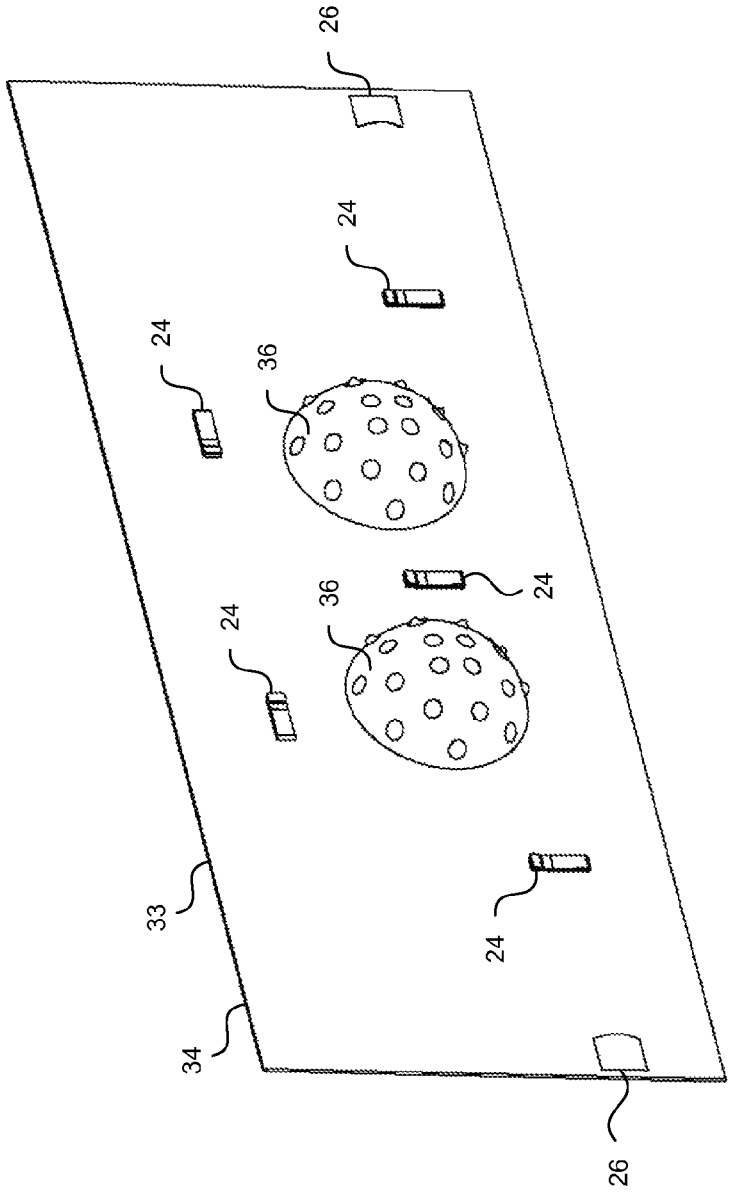


FIG. 5

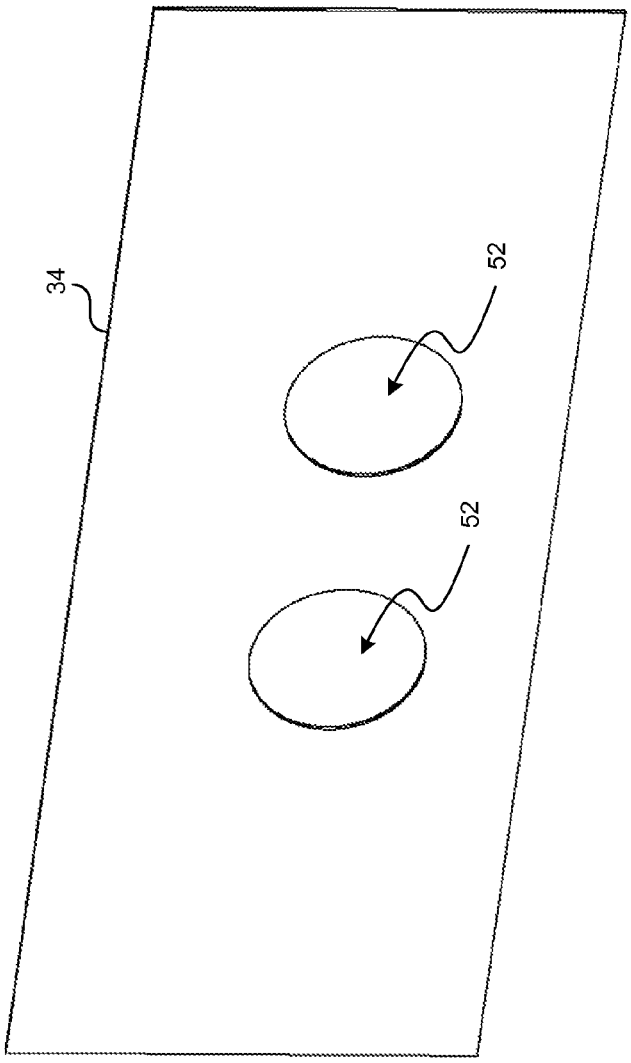


FIG. 6

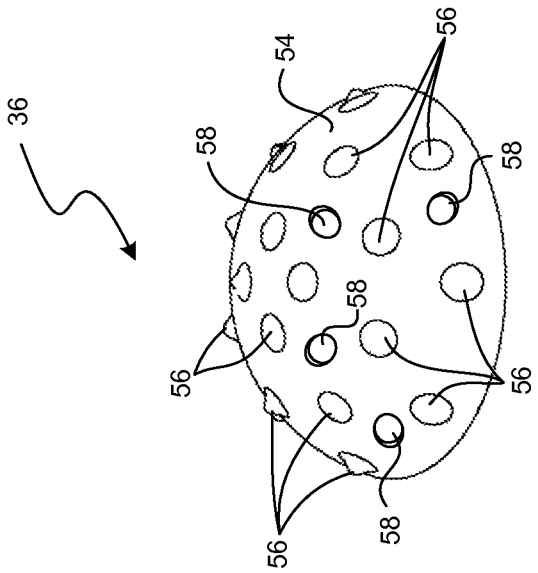


FIG. 7

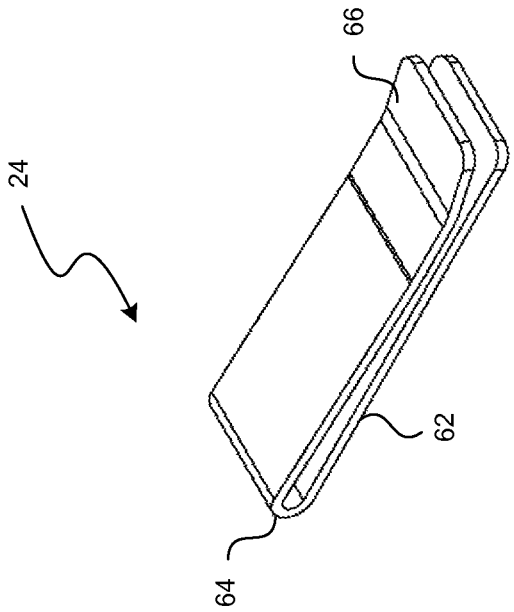


FIG. 8

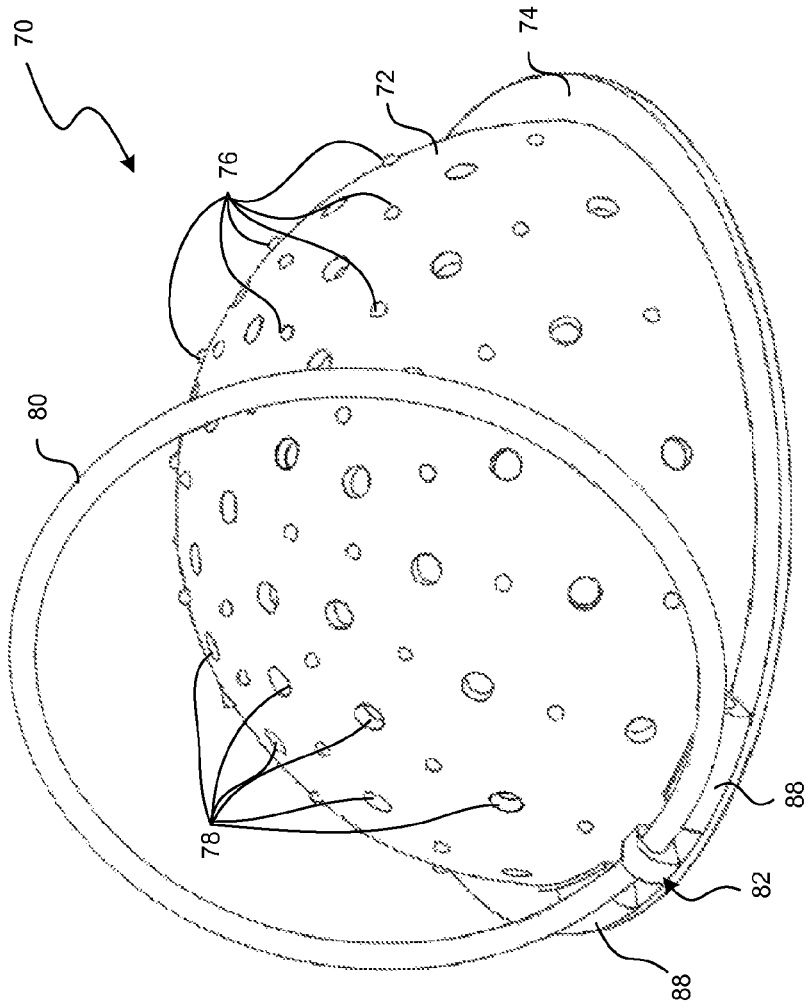


FIG. 9

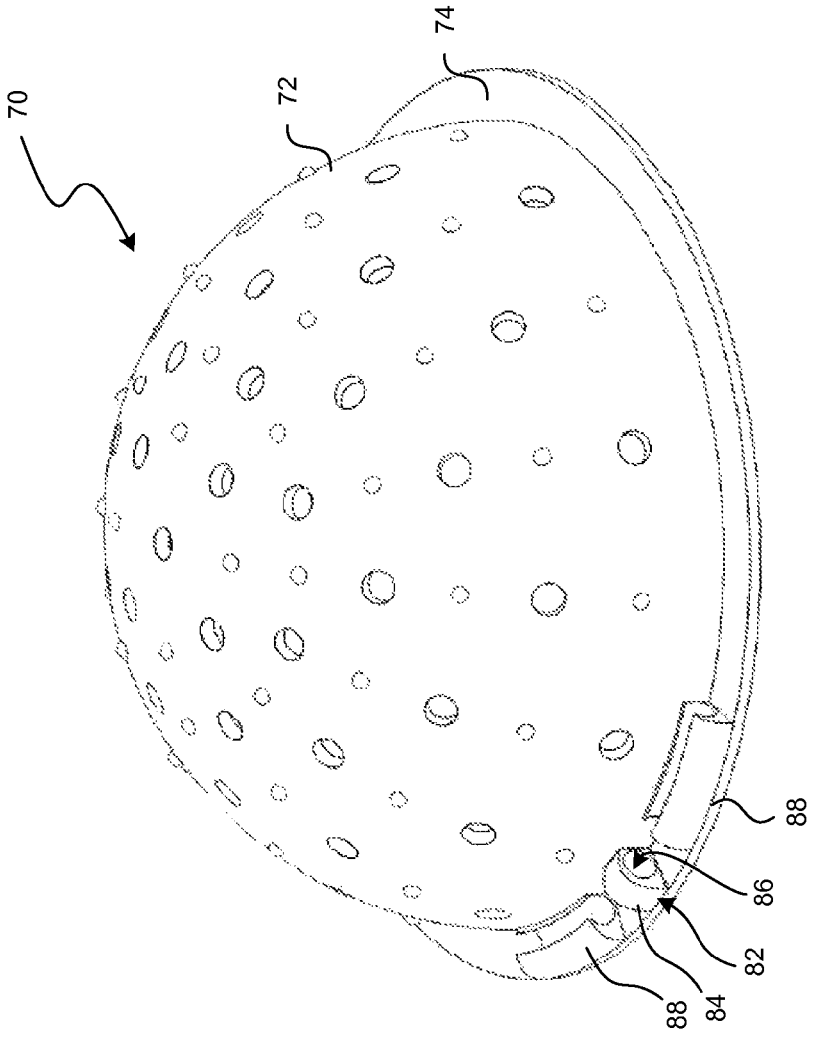


FIG. 10

APPARATUS FOR USE IN LAUNDERING GARMENTS HAVING CUPS AND METHODS THEREFOR

CROSS-REFERENCE TO RELATED APPLICATION(S)

This patent application is a continuation-in-part of U.S. patent application Ser. No. 13/657,493, filed Oct. 22, 2012, entitled "Apparatus For Use In Laundering Garments Having Cups And Methods Therefor," which is incorporated herein in its entirety by reference.

BACKGROUND

Many women's garments include cups formed from a relatively stiff material in order to provide support and a smooth aesthetic appearance. Such garments include brassieres, or bras, lingerie, swimsuits, camisoles, tank tops, dresses, and other garments with built-in breast support. The cups of these garments are often formed of a fiberfill material or a molded foam pad, for example. These types of materials are relatively stiff in order to maintain their shape during normal use.

However, washing these garments in a machine tends to deteriorate the garment, particularly the cups. For example, the cups get crushed or otherwise deformed and the straps tangle with other items in the wash. Furthermore, a bra's clasps often snag on other items in the wash as well as the bra itself. As a result, the bra becomes distorted and damaged, no longer fitting correctly.

Machine washing a bra as few as 4 or 5 times is enough to deteriorate the cups. Wearing out a garment in such a short amount of time is frustrating, particularly when there is a connection to the garments color, fit, and style. Furthermore, bras and garments with breast supports are expensive. Replacing bras that cost approximately $60-70 each, and garments that can cost significantly more, after only 5 washings is impractical.

While conventional mesh garment bags may help prevent clasps from tangling with other items in the wash, conventional mesh garment bags do not protect cups against crushing and distortion. Furthermore, conventional products attempting to address these problems suffer the further disadvantage that they are not useable in a dryer. The only alternative is to hand wash and/or air-dry these types of garments, which is a time consuming and inconvenient endeavor.

Accordingly, there is a need for an apparatus for use in laundering garments having cups that prevents damage to the cups and prevents shoulders, back straps, and clasps from crushing, snagging, and tangling, and is washer and dryer safe.

SUMMARY

Provided herein is an apparatus for use in laundering a garment having cups. In an embodiment, the apparatus comprises a flexible panel, a pair of cup supports attached to the flexible panel, and a plurality of retainers, such as clips, attached to the flexible panel to hold each cup of the garment against a corresponding cup support. The apparatus may further comprise a pouch attached to the flexible panel that is adapted to receive a clasp of the garment.

In an aspect of the technology described herein, each cup support comprises a convex member. Each cup support may include a plurality of apertures formed through the convex member. Each cup support may further include a plurality of protrusions that space the cups of the garment away from the convex member.

In another aspect of the technology, the apparatus includes a water permeable bag extending around the flexible panel. In this case, the flexible panel may be attached to the water permeable bag.

In another embodiment, the apparatus comprises a first flexible panel having a surrounding edge margin and a second flexible panel attached to the first flexible panel along at least a portion of the edge margin defining an interior region therebetween. The first and second flexible panels may comprise water permeable material. A third flexible panel is disposed in the interior region and a pair of cup supports are attached to the third flexible panel. A plurality of retainers are disposed on the third flexible panel proximate the cup supports. The retainers hold each cup of the garment in close confronting relation with a corresponding cup support. In yet another aspect of the technology, the third flexible panel is rectangular and is attached only along one edge to the surrounding edge margin of the first flexible panel.

In some embodiments, the apparatus includes a pair of retainer rings, each attached to a corresponding cup support and operative to hold each cup of the garment against the corresponding cup support. The apparatus can also include a gudgeon attached to each cup support and wherein each retainer ring is rotatably disposed in a corresponding gudgeon. In some embodiments, the apparatus includes at least one latch disposed on each cup support positioned to retain the retainer ring against a corresponding cup of the garment.

Also contemplated herein are methods of preparing a garment having cups for laundering. In an embodiment, the method comprises attaching the garment to a flexible panel, supporting the cups of the garment with a pair of cup supports attached to the panel, and enclosing the cup supports and at least a portion of the garment between two mesh panels. The method may further comprise inserting the flexible panel into the garment and adjacent the cups of the garment, and extending the garment beyond the two mesh panels. A method for laundering a garment having cups is also provided. In an embodiment, this method includes preparing the garment for laundering and then machine washing and machine drying the garment while the garment is attached to the flexible panel and enclosed between the mesh panels.

These and other aspects of the disclosed technology will be apparent after consideration of the Detailed Description and Figures herein. It is to be understood, however, that the scope of the invention shall be determined by the claims as issued and not by whether given subject matter addresses any or all issues noted in the background or includes any features or aspects recited in this summary.

BRIEF DESCRIPTION OF THE DRAWINGS

Non-limiting and non-exhaustive embodiments of the apparatus, including the preferred embodiment, are described with reference to the following figures, wherein like reference numerals refer to like parts throughout the various view unless otherwise specified.

FIG. **1** is a perspective view of an apparatus for use in laundering a garment having cups according to a first exemplary embodiment;

FIG. **2** is a top plan view of the apparatus shown in FIG. **1** with a representative garment installed in the apparatus;

FIG. **3** is a perspective view of the apparatus shown in FIGS. **1** and **2** with the representative garment removed to illustrate the cup support members;

FIG. **4** is a perspective view of a water-permeable bag;

FIG. **5** is a perspective view of the flexible panel and associated clips and cup supports as shown in FIGS. **1-3**;

FIG. **6** is a perspective view of the flexible panel as shown in FIG. **5** as viewed from the back side;

FIG. **7** is a perspective view of a cup support as shown in the figures;

FIG. **8** is a perspective view of a representative retainer as shown in the figures;

FIG. **9** is a perspective view of a cup support and retainer ring according to another exemplary embodiment; and

FIG. **10** is a perspective view of the cup support shown in FIG. **9**.

DETAILED DESCRIPTION

Embodiments are described more fully below with reference to the accompanying figures, which form a part hereof and show, by way of illustration, specific exemplary embodiments. These embodiments are disclosed in sufficient detail to enable those skilled in the art to practice the invention. However, embodiments may be implemented in many different forms and should not be construed as being limited to the embodiments set forth herein. The following detailed description is, therefore, not to be taken in a limiting sense.

Provided herein is an apparatus for use in laundering a garment having cups. The apparatus is designed to help keep the cups, straps, foam, underwire and hooks of the undergarment from pulling, stretching, ringing, and otherwise becoming distorted. The apparatus lifts the garment cups slightly off the dome shape, so that water, detergent and air make contact with the garment allowing it to be cleansed and dried thoroughly, while protecting the shape and form of the cup and the fabric. The apparatus also protects the straps and hooks from catching on other clothes in the washer and dryer, thus helping to eliminate wringing of the garment.

With reference to FIGS. **1** and **2**, apparatus **30** is used in laundering a garment having cups, such as bra **10**. Apparatus **30** includes a water-permeable bag **32** with a flexible panel **34** disposed therein. Water permeable bag **32** includes first and second flexible panels **40** and **42**, respectively. With further reference to FIG. **3**, flexible panel **34** includes a plurality of retainers **24** and a pair of cup supports **36**. In this case, retainers **24** are in the form of clips which are operative to engage the bra.

As is known in the art, bra **10** may include a pair of cups **12** which are interconnected by gore **18**. Extending from each cup **12** is a back wing strap **16** each of which terminates in a corresponding clasp **20**, **22**. Straps **14** extend from the top of each cup **12** and connect with a corresponding back wing **16**.

In this case, the retainers **24** engage bra **10** at the gore **18**, both back wings **16**, and at the top of the cups **12** where each strap **14** extends. It should be understood that the location and construction of the retainers are for illustrative purposes only. Other retainers, in the form of clips, straps, pockets, pouches, snaps, buttons, and the like, may be used and their locations may vary. In this embodiment, a pair of pouches **26** are attached to flexible panel **34** which are sized and configured to receive clasps **20** and **22**. As shown in FIG. **5**, a pair of cup supports **36** are attached to flexible panel **34**. It can be appreciated that the plurality of retainers **24** are disposed proximate the cup supports **36** and are thereby operative to hold each cup **12** of the garment in close confronting relation with a corresponding cup support **36**. The retainers **24** and cup supports **36** may be attached to the flexible panel **34** by sewing, gluing, welding (in the case of plastic components), or through suitable fasteners such as snaps or cooperative hook and loop material, for example.

While the exemplary embodiments of the apparatus are described herein with respect to a bra, it should be understood that other garments having cups may be laundered using the disclosed apparatus. Garments having cups include, for example and without limitation, lingerie, swimsuits, camisoles, tank tops, dresses, training bras, full cup bras, demi cup bras, padded bras, underwired bras, strapless bras, convertible bras, t-shirt bras, minimizer bras, maximizer/push up bras, sports bras, built-in bras, shelf bras, peephole bras, maternity bras, and mastectomy bras, as well as other garments with built-in breast support.

Referring now to FIG. **4**, water-permeable bag **32** includes a first flexible panel **40** and a second flexible panel **42**. First flexible panel **40** has a surrounding edge margin defined by edges **43**, **45**, **47**, and **49**. In this case, second flexible panel **42** is attached to first flexible panel **40** along the edge **49**. The panels may be attached by sewing, for example. In other cases, the panels may be attached or connected together with a zipper, snaps, buttons, or cooperative hook and loop materials. While the flexible bag **32** is described here as two separate panels connected together at edge **49**, it should be appreciated that the bag may be comprised of a single piece of material folded over to form a bag. In such a case, the second panel is effectively attached to the first panel at the fold. Bag **32** is comprised of water-permeable material, such as polyester mesh, for example.

In this embodiment, a zipper **50** extends along edge margin **43** and **45**. When the zipper is engaged it completes the bag, defining an interior region **44** between the first and second panels **40**, **42**. The bag **32** surrounds and protects the garment disposed in the interior region **44**. Although the edge margins **43**, **45** are closed by zipper **50** in this example, the bag may be closed by snaps, buttons, or cooperative hook and loop material, to name a few. It should be appreciated that because zipper **50** only extends along edges **43** and **45** the bottom edge **47** remains open. The opening along edge **47** allows longer garments to be placed inside the apparatus for laundering, such as dresses, lingerie, tank tops, etc.

With reference to FIG. **6** it can be seen that flexible panel **34** includes a pair of openings **52** corresponding with the back side of cup supports **36**. It should be appreciated that cup supports **36** may be hollow, as shown here, and openings **52** prevent any water present during the laundering process from becoming trapped between cup supports **36** and flexible panel **34**.

FIG. **7** illustrates cup support **36** which includes a convex member **54** and a plurality of protrusions **56**. Protrusions **56** are operative to space the cups **12** of the garment **10** away from the convex member **54** thereby allowing fluid and airflow around the cup to facilitate cleaning and drying. As shown in this case, the convex member **54** may also include a plurality of apertures **58** formed through the convex member. Apertures **58** may be included to further facilitate air and water flow during the laundering process. As shown in this embodiment cup support **36** is a hollow convex shaped component. However, cup support **36** may be constructed as a solid piece of material, as a lattice structure or cage, or other convex structure. Cup support **36** may be molded or thermoformed, for example, from any suitable material such as plastic or rubber to name a few. It should be appreciated that cup supports **36** may be different sizes corresponding to various bra cup sizes. In addition, the cup supports **36** may be interchangeable between different sizes. In an embodiment, the

cups are stacked smallest to largest and are removable and replaceable, thereby facilitating the selection of the appropriate sized cup support **36**.

FIG. **8** illustrates a retainer **24** in the form of a clip having a base portion **62** and a clip portion **66** which interconnects to the base portion **62** via arcuate portion **64**. The clip may be formed of plastic such as ABS, or the like. As mentioned above, the clips may be attached to the flexible panel **34** by sewing, gluing, welding (in the case of plastic components), or through suitable fasteners such as snaps or cooperative hook and loop material, for example.

FIG. **9** illustrates a cup support **70** and a retainer ring **80**, according to an exemplary embodiment. In this embodiment, cups **12** are retained against corresponding cup supports **70** by retainer rings **80** that can be latched closed in order to hold the retainer ring against the cup. Cup support **70** includes a convex member **72** having a surrounding rim **74**. As in the above described embodiments, the convex member **72** includes a plurality of protrusions **76** and a plurality of apertures **78** formed through the convex member. Protrusions **76** are operative to space the cups **12** away from the convex member **72** thereby allowing fluid and airflow around the cup to facilitate cleaning and drying. Apertures **78** further facilitate air and water flow during the laundering process. In some embodiments, cup support **70** may be molded, for example, from a clear urethane rubber material, such as Clear Flex® 95 available from Smooth-on, Inc. of Easton, Pa. As in the above described embodiments, the cup supports **70** may be attached to a flexible panel, such as flexible panel **34**, by sewing, gluing, welding (in the case of plastic components), or through suitable fasteners such as snaps or cooperative hook and loop material, for example.

As mentioned above, cups **12** are retained against corresponding cup supports **70** by retainer rings **80**. The retainer rings **80** may be formed of any suitable material such as plastic, for example. With continued reference to FIG. **9**, each retainer ring **80** is rotatably disposed in a corresponding gudgeon **82**. Gudgeon **82** provides a bearing in which the retainer ring **80** can rotate or pivot. As shown in FIG. **10**, gudgeon **82** includes a gudgeon boss **84** and a pivot hole **86** formed through the boss that is sized to receive the retainer ring **80**. In this embodiment, the gudgeon boss **84** is integrally molded with the cup support **70** and extends between the surrounding rim **74** and the convex member **72**.

The cup support **70** can also include one or more latches **88** positioned to retain the retainer ring **80** against a corresponding cup of the garment. Thus, the retainer ring **80** is rotatable between an unlatched state in which a cup of the garment may be positioned on the convex member **72**, and a latched state in which the retainer ring **80** is retained against the cup of the garment. In this embodiment, the support cup **70** includes a pair of latches **88** positioned adjacent the gudgeon **82**. Although, the latches **88** are shown in this embodiment to be next to the gudgeon **82**, a latch or latches may be positioned at other suitable locations. As with the gudgeon boss **84**, the latches **88** can be integrally molded into the cup support **70**, as shown.

Also contemplated herein are methods of preparing a garment having cups for laundering. The method may include attaching the garment to a flexible panel **34** and supporting the cups of the garment with a pair of cup supports such as cup supports **36** or **70**. The method further includes enclosing the cup supports **36** and at least a portion of the garment between two mesh panels such as panels **40** and **42**. In the case of a dress, for example, the method may further comprise inserting the flexible panel **34** into the garment and adjacent the cups of the garment such that cup supports **36** engage and support the cups of the garment. Also in the case of an elongate garment, such as a dress, the method may further comprise extending the garment beyond the two mesh panels **40** and **42**. In this case, beyond panels **40** and **42** across edge **47**. A method for laundering a garment having cups is also provided. In an embodiment, this method includes preparing the garment for laundering, as described above, and then machine washing and machine drying the garment while the garment is attached to the flexible panel and enclosed between the mesh panels.

Accordingly, the apparatus for use in laundering a garment having cups and methods therefor have been described with some degree of particularity directed to the exemplary embodiments. It should be appreciated, however, that the present invention is defined by the following claims construed in light of the prior art so that modifications or changes may be made to the exemplary embodiments without departing from the inventive concepts contained herein.

What is claimed is:

1. An apparatus for use in laundering a garment having cups, the apparatus comprising:

a flexible panel;

a pair of cup supports each attached to the flexible panel; and

a pair of annular retainer rings, each attached to a corresponding cup support and operative to hold each cup of the garment against the corresponding cup support.

2. The apparatus according to claim **1**, wherein each cup support comprises a convex member.

3. The apparatus according to claim **2**, wherein each cup support includes a plurality of apertures formed through the convex member.

4. The apparatus according to claim **2**, wherein each convex member includes a plurality of protrusions operative to space the cups of the garment away from the convex member.

5. The apparatus according to claim **4**, wherein each cup support includes a plurality of apertures formed through the convex member.

6. The apparatus according to claim **1**, further comprising a water permeable bag extending around the flexible panel.

7. The apparatus according to claim **6**, wherein the flexible panel is attached to the water permeable bag.

8. The apparatus according to claim **1**, further comprising a gudgeon attached to each cup support and wherein each retainer ring is rotatably disposed in a corresponding gudgeon.

9. The apparatus according to claim **1**, further comprising at least one latch disposed on each cup support positioned to retain the retainer ring against a corresponding cup of the garment.

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